Autoimmune Disease In The Home Care Patient

Satellite Conference
Wednesday, September 29, 2004
2:00-4:00 p.m. (Central Time)

Produced by the Alabama Department of Public Health
Video Communications Division

Faculty

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Objectives

1. Define Autoimmune Disease.
2. List three examples of Autoimmune Disease.
3. Discuss the home care for patients diagnosed with Autoimmune Disease.

Autoimmune Disease

Definition: A disease in which the body's immune system attacks the body's own cells. There are over 60 different types.

Population Burden

- United States:
  50-70 million persons
- Alabama:
  800,000 to 1,112,000 persons

Demographics

- Generally more females than males.
- Varies within racial and ethnic groups.
- Generally affects people who are young or middle aged.

Causes

Infectious Diseases:

Coxsackie Virus	Type 1 Diabetes
Crohn's Disease	Intestinal Bacteria
Rheumatoid Arthritis	Mycoplasma
Multiple Sclerosis	Hepatitis B

Causes

Genetics/Inheritance:

- Systemic Lupus Erythematosus
- Type 1 Diabetes
- Rheumatoid Arthritis

Causes

Environment:

- Multiple Sclerosis
  Limited sun exposure
- Systemic Lupus Erythematosus
  Smoking, sun exposure
- Psoriasis
  Cold, dry climate

Nutrition:

- Celiac Disease
  Gluten

Natural History of Diseases

- Hard to diagnose.
- Frequently misdiagnosed.
- People may see many doctors before the diagnosis is clear.
- Symptoms and signs take time to appear before the diagnosis.
- Symptoms may be very nonspecific.
- Lab tests may not be helpful early and may be misleading.
- Symptoms may improve, then worsen.

Function of the Immune System

Defense:

- Infections
- Foreign bodies
- Chemical exposures
- Cancer

Function of the Immune System

White Blood Cells:

- Macrophages - Travel in tissue
- Neutrophils - Travel in blood

Lymphocytes:

- B cells from bone marrow. Travel in blood and tissue.
- T cells from thymus. Travel in blood and tissue.

Chemical Responses

Antibodies:

- React to foreign substances (proteins) called antigens

Lymphokines or Cytokines:

- Chemical messenger

Diagnosis

- History
- Physical
- Genetic testing
- Early detection

Diagnosis

- Supporting laboratory studies:
  - Antinuclear antibodies (ANA)
  - Rheumatoid factor (RF)
  - Cytoplasmic antibodies
  - Complement
  - Sedimentation rate
  - Others specific to condition
  - Nonspecific (blood count, liver function, kidney function)

Examples of Autoimmune Diseases

Rheumatoid Arthritis:

- Inflamed joints with joint destruction
- Affects 2 million persons in the U.S.
- Affects twice as many women as men
- Usually develops between ages 25 to 50
- Two types, juvenile and adult onset

Examples of Autoimmune Diseases

Multiple Sclerosis:

- Destruction of protective covering of nerve, myelin, replaced by scars in the brain and spinal cord.
- Affects about 400,000 persons in the U.S.
- Affects women more than men.

Examples of Autoimmune Diseases

Multiple Sclerosis:

- Usually develops between ages 20 to 50.
- Has many forms.
- Five times more prevalent in a temperate area like the northern U.S. as compared to Florida.

Examples of Autoimmune Diseases

Type 1 Diabetes Mellitus:

- Destruction of insulin producing cells in the pancreas, leading to high blood sugar
- Affects children

Examples of Autoimmune Diseases

Systemic Lupus Erythematosus (SLE):

- Immune system attacks the body's connective system.
- Causes widespread damage and health problems.
- Difficult to estimate how many are affected; hard to diagnose.

Examples of Autoimmune Diseases

Systemic Lupus Erythematosus (SLE):

- Affects people of African, Asian, or Native American descent three times as often as whites.
- Nine out of ten persons are females.
- Usually occurs between ages 20 to 35.
- Two types, discoid (DLE) and systemic (SLE).

Examples of Autoimmune Diseases

Psoriasis:

- Chronic skin condition, with skin cells growing quickly.
- Causes thick reddish or white patches on skin.
- Affects 2 to 2.6 of the U.S. population, between 5.8 to 7.5 million persons.
- Mostly affects adults, females and males equally.
- Can have associated arthritis.

Examples of Autoimmune Diseases

Scleroderma:

- Skin tightens and becomes thicker and harder, with widespread damage.
- Affects between 40,000 to 165,000 persons in the U.S.
- More common in women, more frequently of African American than European descent.
- Affects persons between ages 30 to 50.
- Several forms.

Examples of Autoimmune Diseases

Crohn's Disease:

- Inflammatory bowel disease, causing inflammation or ulceration in intestines.
- Affects men and women equally.
- May run in families.

Examples of Autoimmune Diseases

Fibromyalgia:

- Results in chronic pain and tenderness in muscles and soft tissue as well.
- Sleep difficulties, fatigue and other symptoms but no permanent damage.
- Affects between 3 to 6 million persons in the U.S.
- Mostly women of childbearing age.
- May be due to injury or trauma.

Examples of Autoimmune Diseases

Myasthenia Gravis:

- Antibodies to nervous system chemical transmitter block action of chemical, causing muscles under some or little stress to become fatigued.
- Affects between 14,000 to 40,000 persons in the U.S.
- More likely to affect women than men.
- Usually occurs between ages 20 to 40 for women and between ages 50 to 70 for men.

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

- Known as the "wolf" for facial rash.
- Attacks connective tissue.
- Discoid (DLE) affects sun exposed skin.
- Systemic (SLE) affects skin and internal organs.

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

- Course waxes and wanes.
- Many persons have minor problems; others have major disability.
- 10 year survival is over 85%

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Diagnosis should have at least 4 of these 11 characteristics:

- Painful or swollen joints and muscle pain
- Unexplained fever
- Red rashes, most commonly on face
- Chest pain upon deep breathing
- Unusual loss of hair

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

- Pale or purple fingers or toes from cold or stress (Raynaud's phenomenon)
- Sensitivity to the sun
- Swelling (edema) in legs or around eyes
- Mouth ulcers
- Swollen glands
- Extreme fatigue

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Some drugs cause lupus-like conditions
- Hydralazine
- Pronestyl
- Dilantin

Can be aggravated by hormone replacement and oral contraceptives

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Most common symptoms
- Extreme fatigue
- Painful and swollen joints
- Unexplained fever
- Skin rashes
- Kidney problems
- Sores in skin, usually fingers

No known cure

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

History
- Illness flares, then remissions
- Different symptoms occur at different times

Diagnosis may take years or months

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Laboratory test
- Most common antibody found - ANA
- No single test makes the diagnosis
- May need skin or kidney biopsy
- May need to see a rheumatologist

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Can develop
- Nephritis
- Pleuritis and/or pneumonia
- Myocarditis and/or heart blockage
- Seizures and dizziness

Patients need to recognize symptoms of flare and call the doctor

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Treatments
- Nonsteroidal anti-inflammatory drugs (NSAIDS)
- Disease modifying antirheumatic medications (DMARDS)
- Antimalarials

Symptoms and Treatment
Systemic Lupus Erythematous (Lupus or SLE):

Treatments

- Corticosteroids - mainstay medication
- Immunosuppressives - cytoxan, cellcept
- New medications - biologics, being tested

Symptoms and Treatment
Rheumatoid Arthritis:

- Affects bones and joints - inflammatory condition
- Damages lining of joints - synovium
- Can cause joint problems in digits, hands and feet
- Can damage cervical spine, causing spinal cord damage

Symptoms and Treatment
Rheumatoid Arthritis:

- Can cause disability in young people
- Increases risk of heart attack and stroke
- Rarely affects other parts of the body
- Controllable, not curable
- Treat early and aggressively to prevent joint damage

Symptoms and Treatment
Rheumatoid Arthritis:

- Severity and quickness of progression varies between individuals
- Some joint destruction can be seen in 4 months
- One report showed that over 90% of patients had major joint damage less than 2 years after diagnosis

Symptoms and Treatment
Rheumatoid Arthritis:

- Very important to diagnose early and treat with disease modifying antirheumatic drugs (DMARDS)
- Goal is to minimize pain, joint destruction and disability

Symptoms and Treatment
Rheumatoid Arthritis:

Diagnosis

- History and physical
- Examine pattern of illness and joints affected
- Supporting laboratory studies
  - Rheumatoid factor - RF
  - Sedimentation rate

Symptoms and Treatment
Rheumatoid Arthritis:

Joints

- Pain
- Swelling
- Stiffness
- Deformity
- Fatigue

Treatment
Rheumatoid Arthritis:

- Nonsteroids - NSAIDS
- Tylenol
- COX-2 Inhibitors
  - Celebrex
  - Vioxx
- Corticosteroids

Treatment
Rheumatoid Arthritis:

DMARDS

- Azathioprene
- Cyclosporine
- Hydroxychloroquine
- Gold sodium thiomalate
- Leflunomide
- Methotrexate
- Sulfasalazine

Treatment
Rheumatoid Arthritis:

Biological response modifiers:

- Tumor Necrosis Inhibitors
  - Entanercept
  - Infliximab
  - Adalimumab
- Interleukin 1 Inhibitor
  - Anakinra

Symptoms and Treatment
Multiple Sclerosis (MS):

- Inflammation of white matter in brain, with plaques or scars where myelin is destroyed
- Life-long chronic disease
- Unpredictable; ranges from benign to disabling
- Some cases are diagnosed quickly; others take time
- Produces different symptoms at different times; rarely fatal, most have normal life expectancy

Symptoms and Treatment
Multiple Sclerosis (MS):

- 20% have a benign form of disease, with no progression after initial episode and normal function.
- A small percentage have a malignant form with swift decline and major disability or death after onset.

Symptoms and Treatment
Multiple Sclerosis (MS):

Four patterns:

- Relapsing-remitting
  - Complete or partial recovery
  - 75% of cases
- Primary progressive
  - Gradual decline and no remission
  - 15% of cases

Symptoms and Treatment
Multiple Sclerosis (MS):

- Secondary progressive
  - Starts like relapsing-remitting
  - Then acts like primary progressive
  - Seen in 50% of those with relapsing-remitting
- Progressive-relapsing (rare)
  - Starts with progressive, acute attacks
  - Seen in 10% of cases

Symptoms and Treatment
Multiple Sclerosis (MS):

Symptoms:

- Blurred or double vision
- Red-green color distortion
- Loss of vision in one eye
- Muscle weakness in extremities
- Difficulty with balance
- Partial or complete paralysis
- Fatigue
- Paresthesias

Symptoms and Treatment
Multiple Sclerosis (MS):

Symptoms:

- Speech impediments, tremors, dizziness, hearing loss
- Difficulty with concentration, attention, memory
- Depression
- Loss of bowel or bladder control
- 60% of persons have symptoms worsen when body temperature is increased by exercise or by outdoor temperature

Symptoms and Treatment
Multiple Sclerosis (MS):

- Diagnosis:
  - History and physical
  - Neurologist
- Increased risk:
  - Inheritance
  - Environmental exposure-some viruses, bacteria

Symptoms and Treatment
Multiple Sclerosis (MS):

Tests:

- Magnetic Resonance Imaging (MRI)
  - Can see “bright” spots where lesions are
  - Can use to detect old lesions from new lesions
  - Follow treatment
- Evoked potentials
- Cerebrospinal fluid

Has to be diagnosed in context. Many other similar conditions. No cure.

Symptoms and Treatment

Multiple Sclerosis (MS):

Treatment:

- Corticosteroids
- Antiviral agents
  - Beta interferon
- Muscle relaxants
  - Zanaflex, lioresal
- Medications to reduce fatigue
  - Prozac, symmetrel, provigil
- Plasma exchange

Research

Early detection: antibodies appear years before symptoms

- Trying to prevent before disease appears
- Trying earlier treatment to modify level of disease

Research

Scleroderma: immunosuppressive drugs for lung problems

- Increased use of ACE inhibitors for persons with kidney problems
- Ultraviolet light
- Stem cell transfusions

Research

SLE

- What causes it
- How to best treat it
- Identification of specific genes
- Cholesterol lowering drugs to prevent heart disease
- Biologic agents to block the immune system

Research

Multiple Sclerosis

- Interferon beta and glatiramer acetete for the immune system
- New monoclonal antibody looks promising
- Cholesterol lowering drug reduced the number of brain lesions

Research

Rheumatoid Arthritis

- Monoclonal antibody, Enbrel, reduces joint damage.
- Newer antibody blocker reduced disease activity in patients with severe disease.

Research

Rheumatoid Arthritis

- Cholesterol lowering drugs, statins, have reduced inflammation in patients.
- High daily intake of Vitamin C from fruits and vegetables significantly reduced the chance of having rheumatoid arthritis.

Research

Type 1 Diabetes Mellitus

- Giving inhaled insulin to persons with antibodies to insulin without diabetes to try to prevent it.
- Trying to regulate the level of natural killer T cells to prevent or modify the disease.

Research

Crohn's Disease

- Using tumor necrosis factor alpha (TNF) to reduce inflammation.
- Using antibiotics to treat.
- Using budesonide, a corticosteroid, to decrease side effects of steroids.
- Using immunosuppressive drugs.

Research

Crohn's Disease

- Using experimental drug, natalizumab, which binds to immune cells.
- Using zinc to remove free radicals to reduce inflammation.

Research

Myasthenia Gravis

- Using intravenous immune globulin to see if it improves response

Psoriasis

- Looking at genetic relationships
- Trying drugs to block the activity of T cells or cytokines
- Several drugs are awaiting FDA approval
- Improving ability to use laser to treat skin

Research

Fibromyalgia

- Looking at levels of low cortisol to see if they are related to symptoms
- UAB - looking at brain regions which are involved in pain symptoms
- Others are looking at post-Lyme disease model

Home Care

- Provide the care that is ordered
- Might need wound care support
  - Decubitus ulcer
  - Ulcers on fingers
- Might have major neurological deficits/problems
  - Paralysis
  - Blindness
  - Dizziness
  - Seizures

Home Care

- Might have major complications of illness
  - Dialysis
- May be very fatigued
- Might be on specific dietary restrictions/intakes
- May be on many medications
- May be on complicated medication regimens
- May develop flares of illness

Home Care

- Contact supervisor
  - Change in illness pattern
  - Worsening of disability
  - Problems with medication compliance
  - Problems with nutrition
- Many patients will require unique support from caregiver and Home Health staff